

## Claims

What is claimed is:

1. A word prediction method, said method comprising the steps of:  
  
specifying a sentence structure consisting of multiple words, including a  
5 target word to be predicted;  
  
employing said sentence structure to select a word and/or a word  
sequence that has a modification relationship with said target word to be predicted; and  
  
predicting said target word based on said word and/or said word  
sequence that is selected.
- 10 2. The word prediction method according to claim 1, wherein said word  
and/or said word sequence constitute a partial analysis tree structure in said sentence  
structure.
3. The word prediction method according to claim 1, wherein, when  
multiple words and/or word sequences are selected, word prediction is performed based  
15 on said words and/or word sequences that are selected.

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4. A word prediction method, said method comprising the steps of:

specifying a modification of a word to be predicted by a different word and/or word sequence; and

prediction said word using said different word and/or word sequence that

5 is specified.

5. The word prediction method according to claim 4, wherein said modification includes a modification direction, and said word to be predicted modifies a prior word.

6. The word prediction method according to claim 4, wherein, when

10 multiple modifications are established between said word to be predicted and said different word and/or word sequence, a word is predicted for each of said modifications.

7. A speech recognition method, said method comprising the steps of:

specifying the structure of a phrase from the beginning of a sentence to

15 the j-th word ( $j=0, 1, 2, \dots$ );

employing a sentence structure up to said j-th word to specify one or multiple partial analysis trees modifying the (j+1)th word;

predicting said (j+1)th word based on said one or multiple partial analysis trees;

5 obtaining a sentence for a phrase including said predicted (j+1)th word and the probability value for said sentence structure; and

performing the above steps up to the last word of said sentence, and selecting, as speech recognition results, a sentence structure and a word sequence having maximum probability values.

10 8. A word prediction apparatus comprising:

a storer which stores a dictionary wherein text data that have been learned is written; and

a predictor which employs a structure of a sentence consisting of multiple words, including a word to be predicted, to select a word and/or a word  
15 sequence that has a modification relationship with said word to be predicted, and which predicts said word based on said word and/or said word sequence that is selected.

9. A word prediction apparatus comprising:

a storer which stores a dictionary wherein text data that have been learned is written; and

a predictor which selects a word and/or a word sequence that has a  
5 modification relationship with a word to be predicted, and which predicts said word based on said word and/or said word sequence that is selected.

10. The word prediction apparatus according to claim 9, wherein, for a predetermined word or word sequence based on said text data, a frequency where at another predetermined word appears is stored in said dictionary.

10 11. The word prediction apparatus according to claim 10, wherein said predictor calculates a probability value for a word sequence including a word that is predicted based on said frequency.

12. The word prediction apparatus according to claim 11, wherein said predictor selects, as a prediction result, a word sequence having the maximum  
15 probability value.

13. A speech recognition apparatus comprising:

an acoustic processor which converts an input analog speech signal into a digital signal;

5 a first storer which stores an acoustic model that has learned a feature of speech;

a second storer which stores a dictionary wherein an appearance frequency of a predetermined word relative to another predetermined word and/or word sequence is written; and

10 a recognizer which uses said acoustic model and said dictionary to calculate a probability value for said digital signal, and which recognizes a word having the maximum probability value as input speech, wherein said recognizer predicts a word to be predicted based on a structure of a sentence including said word, and employs said appearance frequency to calculate said probability value for said sentence, including said word that is predicted.

14. A computer system comprising:

a specifier which specifies a modification relationship between a word to be predicted and another word and/or word sequence, and which predicts said word by employing said word and/or word sequence modifying said word; and

5 a display which displays said word that is predicted, and said modification relationship.

15. A storage medium, on which a computer readable program is stored that permits a computer to perform:

a first process for specifying a sentence structure consisting of multiple  
10 words, including a target word to be predicted;

a second process for employing said sentence structure to select a word and/or a word sequence that has a modification relationship with said target word to be predicted; and

a third process for predicting said target word based on said word and/or  
15 said word sequence that is selected.

16. A storage medium, on which a computer readable program is stored, that permits a computer to perform:

a first process for specifying a modification relationship between a word to be predicted and a different word and/or word sequence; and

5 a second process for predicting said word using said different word and/or word sequence that is specified.

17. A program transmission apparatus comprising:

a storer which stores a program permitting a computer to perform

10 a first process for specifying a sentence structure of a multiple word sentence, including a target word to be predicted,

a second process for employing said sentence structure to select a word and/or a word sequence that has a modification relationship with said target word to be predicted, and

15 a third process for predicting said target word based on said word and/or said word sequence that is selected; and

a transmitter which reads said program from said storer and transmits said program.

18. A program transmission apparatus comprising:

a storer which stores a program permitting a computer to perform

5 a first process for specifying a modification relationship between a word to be predicted and a different word and/or word sequence, and

a second process for predicting said word using said different word and/or word sequence that is specified; and

10 a transmitter which reads said program from said storer and transmits said program.

19. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for word prediction, said method comprising the steps of:

15 specifying a sentence structure consisting of multiple words, including a target word to be predicted;



employing said sentence structure to select a word and/or a word  
sequence that has a modification relationship with said target word to be predicted; and  
predicting said target word based on said word and/or said word  
sequence that is selected.

5           20.    A program storage device readable by machine, tangibly embodying a  
program of instructions executable by the machine to perform method steps for word  
prediction, said method comprising the steps of:

specifying a modification of a word to be predicted by a different word  
and/or word sequence; and

10               prediction said word using said different word and/or word sequence that  
is specified.

21.    A program storage device readable by machine, tangibly embodying a  
program of instructions executable by the machine to perform method steps for speech  
recognition, said method comprising the steps of:

15               specifying the structure of a phrase from the beginning of a sentence to  
the j-th word ( $j=0, 1, 2, \dots$ );

employing a sentence structure up to said j-th word to specify one or multiple partial analysis trees modifying the (j+1)th word;

predicting said (j+1)th word based on said one or multiple partial analysis trees;

5 obtaining a sentence for a phrase including said predicted (j+1)th word and the probability value for said sentence structure; and

performing the above steps up to the last word of said sentence, and selecting, as speech recognition results, a sentence structure and a word sequence having maximum probability values.